BUJA, P.G.

Potassium iodide therapy of epizootic encephalomyelitis of horses. Veterinariia 30 no.4:36 Ap '53. (MLRA 6:4)

1. Andreyevo-Ivanovskaya rayvetlechebnitsa, Odesskoy oblasti.

BUGACHEV, A. G.

USSR/Human and Animal Physiology. The Nervous System. V

Abs Jour: Ref. Zhur-Biol., No 6, 1958, 27402.

Author : A.G. Bugachev.
Inst : The University of Tomsk
Title : The Lability of Nervous Processes.

Orig Pub: Tr. Tomskogo un-ta, 1956, 143, 187-190.

Abstract: Unilateral or bilateral alteration of the signal meaning of conditioned stimuli was produced (by the motor-olfactory technique) in 14 domestic pigeons. In two pigeons the attempt to convert a positive stimulus into an inhibitory one was unsuccessful. In the majority of the pigeons the brief manifestation of an ultraparadoxical phase was observed during the course of the alteration.

Card : 1/1

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ACCESSION NR: AP4017589 S/0109/64/009/002/0201/0210

AUTHOR: Bol'shakov, I. A.; Bugachev, G. F.; Vatollo, V. V.

TITLE: Discerning the parameters of signals separated from noise

SOURCE: Radiotekhnika i elektronika, v. 9, no. 2, 1964, 201-210

TOPIC TAGS: signal noise discrimination, mixed signals separation, mixed signals separation theory, mixed signals noise separation

ABSTRACT: The problem of optimum Bayes filtration 1 of random-variable parameters of kindred signals received as a mixture with a noise background is solved. An optimum "measuring filter" is suggested whose special device can discriminate the parameters by the form of their coding in the mixture and by the nature of their time variation. Measuring time delays of two pulsed periodic signals of like shape, against a normal white background, is considered as a "practical example" illustrating the theory. It is inferred that the theory can be

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ACCESSION NR: AP4017589

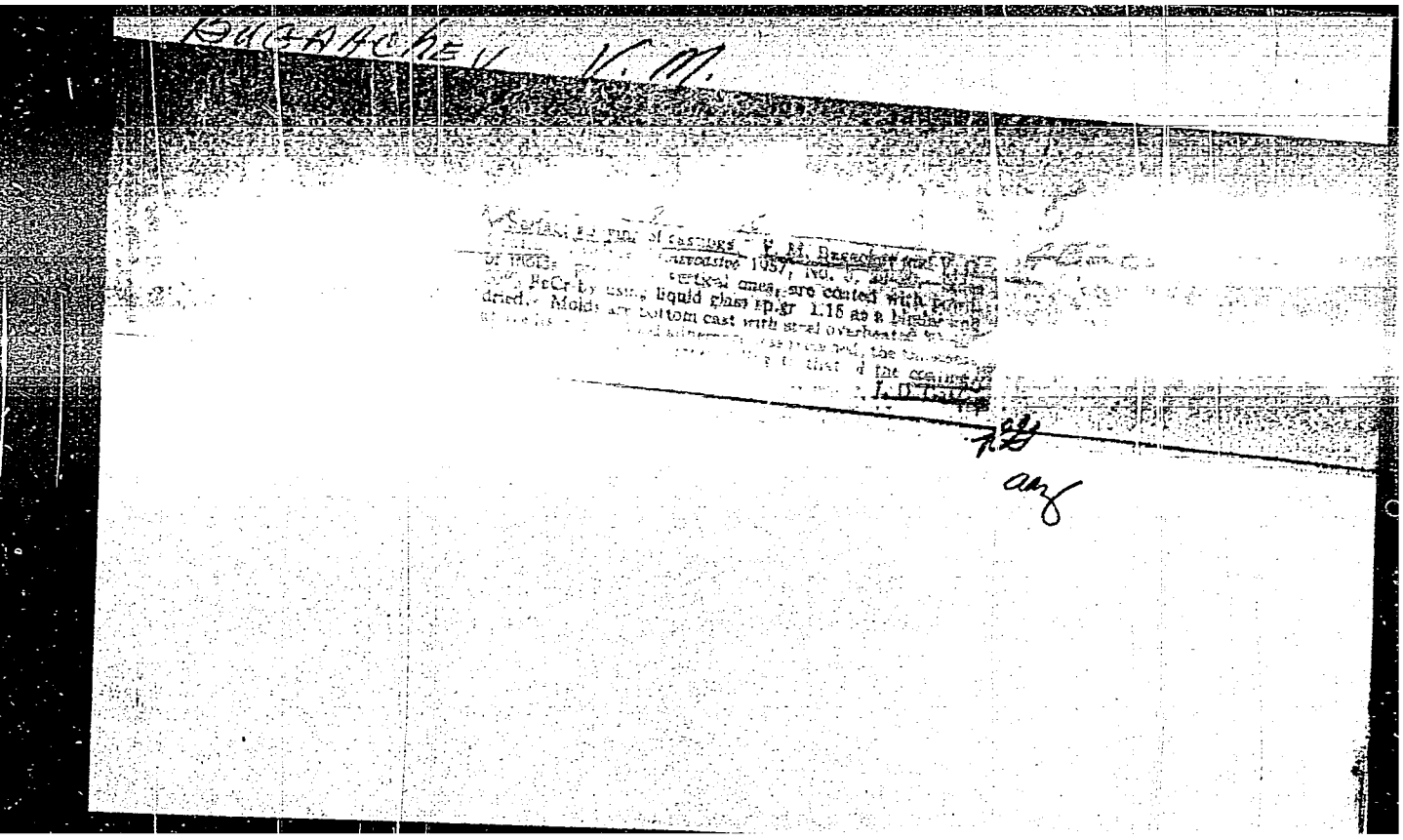
used for designing a separator of 2-3 statistically close signals; however, with a higher number of signals, the number of alternatives rises so rapidly (as 1!) that it would be more reasonable to use, e.g., a quasi-optimum method of successive alternative-pair comparisons. Another limitation of the theory is that, in the process of observation, the decision as to the number of signals is not reconsidered and the signals are regarded as finally solved. Orig. art. has: 2 figures and 40 formulas.

ASSOCIATION: none

SUBMITTED: 07May62 DATE ACQ: 18Mar64 ENCL: 00

SUB CODE: CO NO REF SOV: 004 OTHER: 000

Card 2/2



BUGACHEV, V.M., kand.tekhn.nauk, red.; IVANOV, D.P., doktor tekhn.nauk, nauchnyy red.; RABINOVICH, B.V., kand.tekhn.nauk, nauchnyy red.; MARIYENBAKH, L.M., doktor tekhn.nauk, nauchnyy red.; KRESHCHANOVSKIY, N.S., kand.tekhn.nauk, nauchnyy red.; SMIRNOVA, G.V., tekhn.red.

[Foundry practice; research and experiments] Liteinoe proizvodstvo; nauchno-issledovatel'skie i opytnye raboty. Trudy Vsesoiuznogo soveshchaniia. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1960. 250 p. (MIRA 13:10)

1. Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Liteynaya sektsiya.
(Founding)

BUGADOV, Viktor S., DZHELEPOV, Yermolov, MOSKALEV,

"Elastic Scattering of Negative Pions by Protons at Energies 128 and 162 Mev"
"Internal Conversion Pairs in Neutral Pion Decay"

paper presented at the Intl Conference on High Energy Physics, Rochester, N. Y. and/or Berkly California, 25 Aug - 16 Sep 1960.

BUCAEV, D.

BUCAEV, D. Possibilities for mechanization are many, but ready utilized. p. 3.

Vol. 5, no. 358, Nov. 1956
QUESTIONS
TECHNOLOGY
RUMANIA

So: East European Accession, Vol. 6, No. 5, May 1957

BUGAJ, Josef (Krakow, ul. Curie-Sklodowskiej 10)

Case of removal of a needle from the heart. Polski przegl. chir. 26 no.7:611-621 July 54.
(FOREIGN BODIES, heart, needle, extraction)
(HEART, foreign bodies, needle, extraction)

BUGAJ, Jozef; DABROWSKI, Marian

A case of successful termination of abdominal pregnancy at term. Ginek. pol. 34 no.1:113-116 '63.

1. Ze Szpitala Powiatowego im. Henryka Dobrzyckiego w Limanowej.
(PREGNANCY, ABDOMINAL)

BUGAJ, K.

Technological process for detecting the defects of materials by means of a magnetic field. p. 116.

(PRZEGLAD MECHANICZNY. Vol. 9, No. 4, Apr. 1957. Warszawa, Poland)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 10, October 1957. Uncl.

MACIAK, [illegible], Eugeniusz

Degree of vaginal cleanness and endometritis. Pol. tyg. lek. 19 no.35:1321-1322 30 Ag '64.

1. Z Oddziału Położnictwa i Chorób Kobiecych Zespołu Klinik Akademii Medycznej w Krakowie, (kierownik: dr Antoni Konstantynowicz).

JEZIORO, Zdzislaw; BIELAWSKI, Janusz; BUGAJSKI, Adam; FAST, Jakub

Cure of acute pulmonary abscess by means of the inhalation of an aerosol containing antibiotics and a detergent. Polski tygod.lek. 15 no.40:1537-1539 3 O '60.

1. Z III Kliniki Chirugicznej A.M. we Wroclawiu; kierownik: doc. dr med. Zdzislaw Jezioro.
(LUNG ABSCESS ther)
(ANTIBIOTICS ther)
(DETRGENTS ther)

JEZIORO, Zdzislaw; FAST, Jakub; BIELAWSKI, Janusz; BUGAJSKI, Adam

Clinical value of bacteriological studies in antibiotic therapy of surgical diseases. Polski przegl. chir. 33 no.7/9:847-850 '61.

1. Z III Kliniki Chirurgicznej AM we Wroclawiu Kierownik: doc. dr Z.Jeziore.

(ANTIBIOTICS ther)

DRAK, Juliusz; BUGAJSKI, Adam; ZIMMER, Zenon; SOLTYS, Wieslaw

Foreign bodies of the posterior mediastinum. Otolaryng. Pol. 19 no.3:397-399 '65.

1. Z III Kliniki Chirurgicznej AM we Wroclawiu (Kierownik: prof. dr. med. Z. Jezioro).

2

POLAND

JEZIORO, Zdzislaw, BIELAWSKI, Janusz, BIERNAT, Mieczyslaw, KRZYWY, Tadeusz, and BUGAJSKI, Adam, Third Surgical Clinic (III Klinika Chirurgiczna) AM [Akademia Medyczna, Medical Academy] in Wroclaw (Director: Prof. Dr. med. Z. JEZIORO) and the Institute of Immunology and Experimental Therapy (Instytut Immunologii i Terapii Doswiadczalnej) in Wroclaw (Director: Prof. Dr. med. St. SLOPEK)

"Studies on the Effect of Neomycine on the Bacterial Flora of the Digestive Tract."

Warsaw, Polski Tygodnik Lekarski, Vol 18, No 11, 11 Mar 63, pp 397-400.

Abstract: [Authors' English summary] Authors report results of their studies on the bacterial flora of the digestive tract of persons with digestive diseases and on the sensitivity of these bacteria to neomycine prior to the operation. Clinical observations on the effect of neomycine in surgery are also mentioned. Experimental studies should be made before any conclusions concerning the use of neomycine in surgery can be drawn. The 15 references include 2 each Polish and Czech, one French, and 10 English.

1/1

BUGAJSKI, Jan

Effect of subcutaneous adrenalin on blood pressure and on pulse. Acta physiol.polon. 6 no.3:257-260 1955.

1. Z Zakladu Fizjologii A.M. w Krakowie. Kierownik: prof. dr. J Kaulbersz.

(EPINEPHRINE, effects,
on blood pressure & pulse, subcutaneous admin.)
(BLOOD PRESSURE, effect of drugs on,
epinephrine, subcutaneous admin.)
(PULSE, effect of drugs on,
epinphrine, subcutaneous admin.)

BUGAJSKI, Jan; KAULBERSZ, Jerzy

Effect of hormonal factors on blood pressure in physical work.
Acta physiol.polon. 6 no.3:261-271 1955.

1. Z Zakladu Fizjologii A.M. w Krakowie. Kierownik: prof. dr.
J. Kaulbersz

(HORMONES, effects,
on blood pressure in dogs during exercise)
(BLOOD PRESSURE, effects of drugs on,
hormones, in dogs during exercise)
(EXERCISE,
eff. of hormones on blood pressure in dogs during
exercise)

BUGAJSKI, Jan

Effect of physical stress on blood pressure and on pulse in dogs. Acta physiol.polon.6 no.3:273-286 1955.

1.Z Zakladu Fizjologii A.M. w Krakowie. Kierownik: prof. dr J. Kaulbersz.

(EXERCISE, effects,
on blood pressure & pulse in dogs)
(BLOOD PRESSURE,
eff. of phys.stress in dogs)
(PULSE,
eff. of phys.stress in dogs)

KAULBERSZ, J.; OGINSKI, A.; BILSKI, R.; BUGAJSKI, J.

Effect of vagotomy on formation of experimental peptic ulcer in rats. Acta physiol. polon. 7 no.1:3-6 1956.

1. Z Zakladu Fizjologii A. M. w Krakowie Kierownik prof. dr. J. Kaulbersz.

(PEPTIC ULCER, experimental,
eff. of vagotomy on develop. of ulcer in rat. (Pol))
(NERVES, VAGUS, surgery,
vagotomy, eff. on develop. of exper. peptic ulcer. (Pol))

BUGAJSKI, J.; KAULBERSZ, J.

Histamine content in the gastric juice secreted after sham feeding.
Acta physiol.polon. 11 no.5/6:667-668 '60.

1. Z Zakladu Fizjologii A.M. w Krakowie. Kierownik: prof.dr J.Kaulbersz.
(HISTAMINE chem)
(GASTRIC JUICE chem)

KAULBERSZ, J.; BUGAJSKI, J.

Effect of reserpine on gastric secretion. Acta physiol.polon. 11 no.5/6:763-766 '60.

1. Z Zakladu Fizjologii A.M. w Krakowie. Kierownik: prof.dr J.Kaulbersz.

(GASTRIC JUICE)
(RESERPINE)

TASLER, J.; BUGAJSKI, J.; KAULBERSZ, J.

Further studies on simultaneous effects of cobalt and low atmospheric pressure on hemopoiesis. Acta physiol.polon. 11 no.5/6:897-898 '60.

1. Z Zakladu Fizjologii A.M. w Krakowie, Kierownik: prof. dr J.Kaulbersz.

(ATMOSPHERIC PRESSURE)
(COBALT pharmacol)
(HEMATOPOIESIS)

BUGAKOV, A., agronom

Fertility of Solonetz soils depends on the work of agronomists.
Nauka i pered. op. v sel'khoz 9 no.10:65-68 O '59 (MIRA 13:3)
(Solonetz soils)

06202

25 (1), 28 (2) SOV/115-59-11-30/36

AUTHOR: Bugakov, A.F.

TITLE: Building Laboratories on Two-Axle Trailers

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 11, p 64

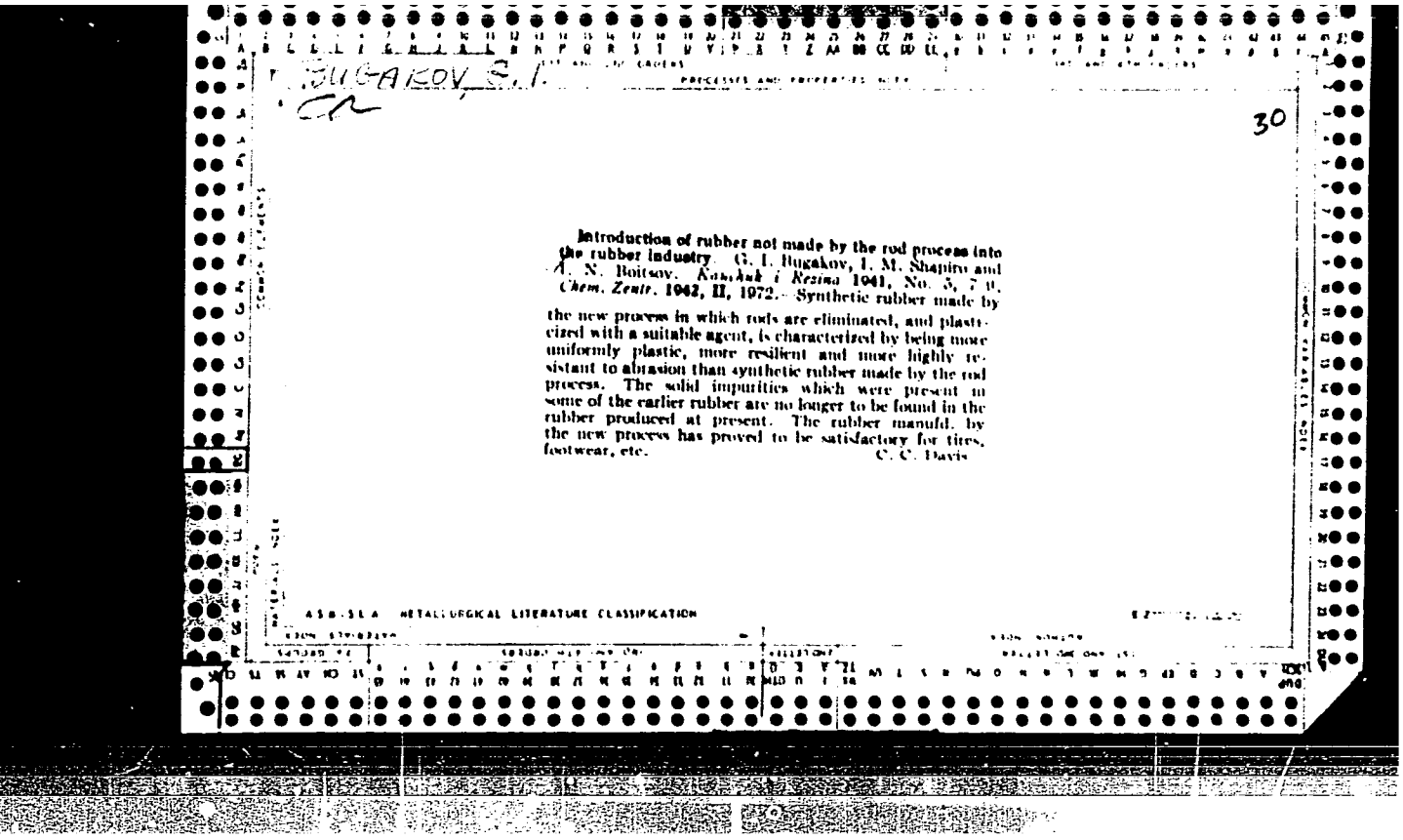
ABSTRACT: Mobile laboratories on two-axle automotive trailers should be established for checking measuring instruments directly at their place of use.

Card 1/1

BUGAKOV, G. I., SUBBOTIN, S. A. and LEBEDEV, S. V.

"The action high temperatures on vulcanized sodium-bivinyl rubber", Trudy Gos. Oput. Zavoda Sintel. Kauchuka, LiteraB. IV. pp 72-84, 1935.

NOTE: See card for LEBEDEV, S. V. for abstract.



BUGAKOV, G. I.

30

Introduction of rubber not made by the rod process into the rubber industry. G. I. Bugakov, I. M. Shapiro and A. N. Boitsov. *Kauchuk i Rezina* 1941, No. 5, 7-10; *Chem. Zentr.* 1942, II, 1972.—Synthetic rubber made by the new process in which rods are eliminated, and plasticized with a suitable agent, is characterized by being more uniformly plastic, more resilient and more highly resistant to abrasion than synthetic rubber made by the rod process. The solid impurities which were present in some of the earlier rubber are no longer to be found in the rubber produced at present. The rubber manufd. by the new process has proved to be satisfactory for tires, footwear, etc.
C. C. Davis

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

S/124/61/000/009/044/058
D234/D303

AUTHOR: Bugakov, I.I.

TITLE: On the problem of using plastics for simulating creep

PERIODICAL: Referativnyy zhurnal. Mekhanika, no. 9, 1961, 24, abstract 9 V194 (V sb. XVIII nauch. konferentsiya prof.-prepodavat. sostava Leningr. inzh.-stroit. in-ta s uchastiyem predstavit. stroit. organizatsiy predpriyatiy i nauchno-tekhn. o-v. Dokl. sektsiy soprotivl. materialov, matem. i teor. mekhan., fiz. khimii i elektrotekhn., L., 1960, 12-18)

TEXT: The author stresses the expediency of using plastics as modelling materials for simulating creep of metals at high temperatures. For this purpose, investigations of deformation properties of celluloid in the conditions of creep, relaxation, at constant speeds of deformation and loading, were carried out. The

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S/124/61/000/009/044/058
D234/D303

On the problem of using plastics...

creep of celluloid is accompanied by an optical effect which can also be utilized for simulation purposes. 2 references. [Abstracter's note: Complete translation]

Card 2/2

S/753/61/000/001/003/007

AUTHOR: Bugakov, I. I.

TITLE: Investigation of a method of photocreep.

SOURCE: Leningrad. Universitet. Matematiko-mekhanicheskiy fakul'tet. Issledovaniya po uprugosti i plastichnosti. no.1. 1961, 107-126.

TEXT: The paper discusses the theoretical and practical problems of the development of the photocreep (PhC) method. The method of PhC is essentially a duplication of the polarization-optical method of the photoelastic (PhE) investigation of stresses by means of the employment of nonlinearly creeping materials which exhibit a substantial amount of creep. It is shown that the most suitable material for this method is celluloid. The problems of interpretation of the interference patterns and the problems of the extrapolation of the results of tests from the model to the full-scale article are discussed. Attention is directed primarily to those boundary problems in which constant loads are prescribed on a portion of the surface of the body while the displacements of the remaining portion of the surface are zero, or else problems in which constant loads are prescribed over the entire surface. The elastic-plastic and polarization-optical characteristics of celluloid are examined relative to its suitability for these two cases; experimental data are

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adduced. It is shown that in these cases the PhC method enables one to obtain with adequate accuracy a solution for problems of quasi-stationary and stationary creep and for problems of the theory of elastic-plastic deformations for the state of accomplished hardening. It is found that the results are extrapolatable from the model to full scale. In the instance of nonstationary creep, under the above-indicated boundary conditions, the PhC method enables one to obtain a good evaluation of the stress distribution; in this instance the results obtained can be extrapolated from model to full scale with an accuracy that is sufficient for practical purposes. For other boundary conditions the method affords an evaluation of the stress distribution if the condition of simple loading and a monotonic increase in deformation are fulfilled. A comparison of the experimental solution of two problems with a theoretical analysis confirms the adequate accuracy of the PhC method. The first of these problems is that of the pure bending of a long straight rectangular rod, the second problem is concerned with the uniform tension of an infinitely thin plate with a circular aperture by forces applied at infinity. The PhC method is not limited to the case of the planar problem examined here. As in the instance of the method of photoelasticity, transition to the three-dimensional problem is possible in principle, even though it is tied to great difficulties, inasmuch as the method of "freezing," which forms an essential part of the PhE method is, of course, not applicable in this instance, while other applicable aspects of the PhE method, such as, the

method of scattered light, the transillumination of the model, are at present not adequately developed or are only now entering the developmental stage. Thanks are expressed to L. M. Kachanov, director of the study, and also to Ye. I. Edelshteyn, for his assistance in the work. There are 9 figures and 12 references (9 Russian-language Soviet, 1 Lithuanian, 1 English: Hu, A. W., Triner, N. H., Bending creep and its application to beam columns, J. Appl. Mech., v.23, no.1, 1956, 35, and 1 Russian-language translation (Gostekhizdat, 1948) of vol. I of M. M. Frocht's "Photoelasticity," originally published by John Wiley & Sons, New York, 1941).

ASSOCIATION: Kafedra teorii uprugosti matematiko-mekhanicheskogo fakul'teta Leningradskogo gosudarstvennogo universiteta im. A. A. Zhdanova (Department of the Theory of Elasticity, School of Mathematics and Mechanics, Leningrad State University imeni A. A. Zhdanov).

S/753/61/000/001/007/007

AUTHOR: Bugakov, I. I.

TITLE: On an equipment for the investigation of the creep of plastics.

SOURCE: Leningrad. Universitet. Matematiko-mekhanicheskiy fakul'tet. Issledovaniya po uprugosti i plastichnosti. no.1. 1961, 213-218.

TEXT: The paper describes an equipment intended to provide experimental test data in simple (monoaxial) and composite stresses, both for constant and for variable stresses. A simple equipment is described to perform the following tests: (1) In monoaxial tension: (a) under constant and stepwise changed loads, (b) under loads changing at a constant rate, (c) with constant deformation, (d) at constant rates of deformation; (2) under biaxial tension: (a) see (1-a); (b) see (1-b). Flat specimens were used. Monoaxial tension tests were performed on two-blade paddle-shaped specimens with a 150-mm-long working portion. Specimens for biaxial tension were made in the shape of a cross, with a center portion 30 x 30 mm. The stress distribution in the center portion was rendered almost ideally uniform by means of longitudinal incisions in the arms of the cross. This was verified by means of photoelastic tests on a celluloid model. The loading equipment is similar to that employed in photoelastic tests. Maximum load: 500 kg;

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sensitivity at that load level: 0.05 kg; mechanical advantage: 50. The temperature was maintained constant to within 0.5°C. Strain measurement in plastic models is rendered difficult by the time-dependent development of the strain in plastics and by the relative smallness of the "static" modulus of elasticity in non-reinforced plastics (50,000 kg/cm^2 and less). In the author's opinion, strain-measuring devices for solid plastics must fulfill the following requirements: (1) Capability to measure relatively large deformations (of the order of several %); (2) a sufficiently elevated sensitivity (of the order of 0.001-0.01%), since not only the deformations themselves but also their increase with time must be measured; (3) absence of any appreciable effect of the testing apparatus on the specimen, such as: Stress concentrations at the contact point, increase in hardness of the specimen, changes in the rheological properties of the system specimen-tensometer; (4) availability of methods for dependable calibration, since a tensometer can no longer be calibrated once it is set up on a specimen; (5) absence of null-point drift, since it is difficult, if not impossible, to verify it; (6) availability of constant-temperature operation. Strain-gages applied to a specimen are found unsatisfactory. Therefore, Martens mirror-type instruments with a 50-mm base were employed and were found to be satisfactory. In the biaxial tension tests the elongations were measured by means of gages (10-mm base) attached to the two sides of a horseshoe-shaped leaf spring fastened at two

points of the specimen span. The linearized characteristic of the tensometers over a range of deformations of several percent was ascertained. The value of a division on the scale of the amplifier equals 0.008% of relative deformation. Comparison tests of the Martens instrument and ordinary tensometers showed identity of readings (45° straight line). It was ascertained by means of photoelastic tests (interference patterns) that the pins of the Martens mirrors did not produce any appreciable localized stresses and that the scatter of the test points in monoaxial tension did not exceed 3% and in biaxial tension 5% of the quantities measured. Thanks are expressed for valuable advice given by Ye. I. Edel'shteyn, D. V. Monakhenko, P. G. Tokar', and P. A. Pavlov, and the late B. P. Sokolov. There are 5 figures and 2 Russian-language Soviet references: (1) Goncharov, N. R. Opredeleniye napryazheniy v detalyakh mashin posredstvom tenzometrov i lakov (Stress determination in machine parts by means of tensometers and brittle coatings). Mashgiz, 1946; (2) Bugakov, I. I. The 18th Sci. Conf. (LISI). Reports of the section on the strength of materials, mathematics, and theoretical mechanics. Leningrad, 1960, 12.

ASSOCIATION: Kafedra teorii uprugosti matematiko-mekhanicheskogo fakul'teta Leningradskogo gosudarstvennogo universiteta im. A. A. Zhdanova (Department of the Theory of Elasticity, School of Mathematics and Mechanics, Leningrad State University imeni A. A. Zhdanov).

S/207/62/000/005/011/012
B125/B102

AUTHOR: Bugakov, I. I. (Leningrad)

TITLE: Creep of celluloid under simple load

PERIODICAL: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 5, 1962, 163-167

TEXT: The creep of commercial celluloid ГОСТ 576-41 (GOST 576-41) under constant uniaxial and biaxial stresses and under variable uniaxial stresses is studied. The specimens were all taken from one sheet, and were slowly cooled after heating to 80°C. Each test (at 20 ± 0.5°C) lasted 25 hrs and most of them were repeated 4 or 5 times. In the uniaxial state of stress the longitudinal deformation ε_1 and sometimes also the transverse deformation ε_2 were measured. In the case of biaxial stress ε_1 and ε_2 were measured. There is scarcely any heating of the celluloid during the creep. $\mu_3 = \mu_6$ and $\dot{\varepsilon}_1 = \dot{\varepsilon}_2 = 3k\sigma$, are valid with sufficient accuracy when $k = 1.73 \cdot 10^{-5}$ cm^2/kg. The deformation deviator

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Creep of celluloid under simple ...

ε'_{ij} is proportional to the stress deviator σ'_{ij}. The coefficient ψ in the relation $\varepsilon'_{ij} = \psi\sigma'_{ij}$ may be represented as $\psi = \Gamma/2T$ and $\psi = 1/2G + \varphi(t)f(T)$. Γ is the shearing deformation intensity and G is the shear modulus. The total deformation ε_{ij} is the sum $\varepsilon_{ij} = \varepsilon^e_{ij} + \varepsilon^p_{ij}$ of the elastic deformation $\varepsilon^e_{ij} = \sigma'_{ij}/2G + k\sigma\delta_{ij}$ and creep deformation $\varepsilon^p_{ij} = \varphi(t)f(T)\sigma_{ij}$ wherein δ_{ij} are the components of the unit tensor. For celluloid, $\varphi(t) = t^n (0 < n < 1)$ is valid in good approximation. The relation $\varphi(t) = a_1 \exp(bT)$ with $b > 0$, which is valid for both strong and weak stresses can be approximated by $f(T) = a_2 T^m$. With small deformations the creep is approximately proportional to the stresses. The derivative $df(T)/dt$ tends to a finite limit if $T \to 0$. At 20°C and higher temperatures these equations are in satisfactory agreement with the experiments. The creep of celluloid under variable stresses is qualitatively described by the theories of aging, flow and consolidation and by that of "heritage". The "heritage" theory gives the best results and the flow theory the poorest.

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Tests made by other deformation methods led to the same conclusions. The "heritage" theory agrees with the experimental data less well when the stresses are decreasing than when they are increasing. A generalization of this theory is not very suitable for describing celluloid. There are 3 figures and 1 table.

SUBMITTED: June 16, 1962

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BUGAKOV, I.I. (Leningrad)

Creep of celluloid under simple load. PMTF no.5:163-167 S-O '62. (MIRA 16:1)
(Creep of materials)

BUGAKOV, I. I.

Dissertation defended for the degree of Candidate of Technical Sciences at the Joint Scientific Council on Physicomathematical and Technical Sciences; Siberian Branch 1962

"Investigation of the Photo-creep Method."

Vestnik Akad. Nauk, No. 4, 1963, pp 119-145

BUGAKOV, I.I.

Relation between birefringence and degradation of polymeric materials in creep. Vysokom.soed. 6 no.2:185-188 F '64. (MIRA 17:2)

1. Nauchno-issledovatel'skiy institut matematiki i mekhaniki Leningradskogo gosudarstvennogo universiteta.

ACCESSION NR: AR4041554 S/0124/64/000/005/V087/V087

SOURCE: Ref. zh. Mekhanika, Abs. 5V670

AUTHOR: Bugakov, I. I.

TITLE: The method of photocreep

CITED SOURCE: Sb. Polzuchest' i dlitel'n. prochnost'. Novosibirsk, Sib. otd. AN SSSR, 1963, 120-127

TOPIC TAGS: plastic, creep characteristic, creep, plasticity, polymer

TRANSLATION: Using plastics, possessing properties of creep, there is studied the possibility of simulating of problems of plasticity and creep taking into account volume forces in a uniform constant field of temperatures. Unloading and the state close to fracture are not considered. In the surveyed time in plastics there is attained a state of quasisteady- state creep. Up to then the disrupted coaxialness of principal axes of stresses and deformations is restored.

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ACCESSION NR: AR4041554

This allows us to simulate the state of steady-state and quasisteady-state creep in metals, concrete, and rocks in conformity of the laws of creep of materials of the model and nature. Simulation is possible at variable stresses, provided there is immaterial uncoaxialness of the principal axes. For a broad class of polymers the dielectric constant, stresses, and deformations are connected by linear relationship. With a uniform state along the normal to the front of a light wave there ensues dependence on the optical difference of movement δ on the difference of quasiprincipal stresses τ and deformations γ

$$\delta = C_1\tau + C_2\gamma$$

where C_1, C_2 depend on the temperature, speed of deformation, and age of material, frequency of passing light. Conditions 1) $C_1 = 0$, 2) $C_2 = 0$, 3) $C_1C_2 > 0$, 4) $C_1C_2 < 0$ determine four piezooptic classes of polymers, membership in which can be established from experiments during constant stress. The classification allows one to select a material of the first class, useful for study of fields of deformation (the optical isocline determining main directions of the dielectric

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ACCESSION NR: AR4041554

constant is coaxial with the principal elongations); of the second class--for fields of stresses (isocline is coaxial with principal stresses). For materials of the third and fourth classes δ depends on τ and on γ. In quasisteady-state creep the isocline is coaxial with the principal stresses and deformations. Use of the law of creep

$$\gamma=\varphi(t)\tau \quad \text{or} \quad \gamma=\Psi(T,t)\tau$$

where T is the intensity of tangential stresses, while time t enters as a parameter, leads to relationships

$$\delta=[C_1+C_2\varphi(t)]\tau$$

or

$$\delta=[C_1+C_2\Psi(T,t)]\tau$$

The family of isochronous curves gives transition from δ to τ. Error here will be greater the more strongly T and τ differ. If C_2/C_1 is small, then error will be small. For alternating stresses the relationships are approximately true. It is possible to select a material, for which even during turn of principal axes of stresses the optical isocline determines the direction of the main stresses. If C_1 and C_2 depend on mechanical magnitudes, then the method can lead to great errors.

SUB CODE: AS, MT ENCL: 00

Card 3/3

BUGAKOV, I.I.

Piezo-optical effect in polymers subjected to simple loading.
Issl. po uprug. i plast. no.3:172-191 '64. (MIRA 18:4)

BUGAKOV, I.I.; SMIRNOVA, V.F.; SHIKHOBALOV, S.F.

Simulating the creep of the T-tail of turbine blades.
Issl. po uprug. i plast. no.3:192-207 '64 (MIRA 18:4)

BUGAKOV, I.I. (Leningrad)

Theory of the creep of metals taking the hardening into consideration. Izv. AN SSSR. Mekh. i mashinostr. no.4:87-89 Jl - Ag '64 (MIRA 17:8)

BUGAKOV, I.I. (Leningrad)

Hereditary theory of creep of polymers. Izv. AN SSSR. Mekh. no.2: 127-130 Mr-Ap '65. (MIRA 18:6)

BUGAKOV, I.I. (Leningrad)

Note on the hereditary theory of creep of metals. PMTF no.1:131-133 Ja-F '65. (MIRA 18:8)

BUGAKOV, I.I. (Leningrad)

Use of the optical method in studying the concentration of stresses in an extensible plain with a circular hole. PMTF no.2:152-154 Mr-Ap '65.
(MIRA 18:7)

L 42311-66 EWT(d)/EWT(m)/EWP(w)/EWP(v)/EWP(t)/ETI/EWP(k)/EWP(h)/EWP(l)/EWA(c)

ACC NR: AT6014515 (A,N) JD/WW/EM SOURCE CODE: UR/2753/65/000/004/0159/0165

AUTHORS: Bugakov, I. I.; Smirnova, V. P.; Shikhobalov, S. P.

ORG: none

TITLE: A study of stress concentrations in T-shaped shanks of turbine blades in conditions of elasticity and creep

SOURCE: Leningrad. Universitet. Matematiko-mekhanicheskiy fakul'tet. Issledovaniya po uprugosti i plastichnosti, no. 4, 1965, 159-165

TOPIC TAGS: stress analysis, stress distribution, turbine blade, elasticity, creep, polarimeter / KSP-6 polarimeter

ABSTRACT: Results are presented from a study of stress concentrations in T-shaped shanks of turbine blades with relative dimensions D/d = 1.58 and h/d = 0.625 (see Fig. 1). The analysis of stress concentrations was performed by the methods of photoelasticity and photocreep. The study was performed on planar models under constant external loading, which is a simulation of the centrifugal force of the blade. The models were prepared according to a metallic template with relative dimensions of r/d = 0.010, 0.0417, 0.0625, and 0.1250. The models were prepared from a mixture of PN-1 in 30% styrol. Details of the preparation of specimens are given. Instruments used in the testing included a KSP-6 polarimeter, an SKK-2 compensator, and a Martens tensometer. The stress concentration coefficient k was determined

1/3

ACC NR: AT6014515

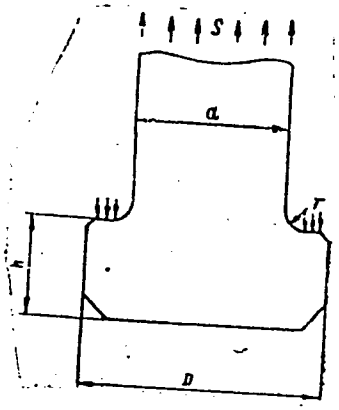

Fig. 1.

according to the formula $k=\sigma_{max}/S$,

where σ_{max} is the measured stress, and S is the nominal stress in shank collar. The creep characteristics were measured according to the equation from the theory of aging

$$\varepsilon_{ij}=\frac{1+\nu}{E}\left(s_{ij}+\frac{1-2\nu}{1+\nu}\sigma\Delta_{ij}\right)+\varphi(t)\exp(bT)s_{ij},$$

$$i, j=1, 2, 3,$$

where ε_{ij} are components of the deformation tensor, s_{ij} are components of the deviator stress, $\sigma=\frac{T}{3}\sigma_{ii}$ is the mean pressure, T is the intensity of tangential

ACC NR: AT6014515

stresses, t is the time, and ν is Poisson's coefficient. Six plots of the creep and elastic deformation characteristics are shown. Orig. art. has: 3 equations and 7 figures.

SUB CODE: 13,20/ SUBM DATE: 07Apr64/ ORIG REF: 003/ OTH REF: 001

Card 3/3

ACC NR: AT7002117 (N) SOURCE CODE: UR/0000/66/000/000/0323/0329

AUTHOR: Bugakov, I. I.; Shikhobalov, S. P.; Smirnov, V. P.; Smirnova, S. V.

ORG: none

TITLE: Stress-concentration in turbine discs with apertures and in T-head blade mounts in the discs

SOURCE: Vsesoyuznaya konferentsiya po polyarizatsionno-opticheskomu metodu issledovaniya napryazheniy. 5th, Leningrad, 1964. Polyarizatsionno-opticheskiy metod issledovaniya napryazheniy (Polarizing-optical method of investigating stresses); trudy konferentsii. Leningrad, Izd-vo Leningr. univ., 1966, 323-329

TOPIC TAGS: turbine, turbine blade, contact stress, stress analysis, turbine disc, creep mechanism

ABSTRACT: The authors describe the results of a systematic investigation, using plastic models, of creep in the critical parts of steam and gas turbines. Problems of elasticity, which approximately describe the condition of parts at the moment of turbine start up, can be solved either theoretically or experimentally using the technique of "freezing" flat models made of polyester resin. The problems of creep are investigated utilizing photographic methods on models prepared from transparent celluloid. These models were subjected to a constant external load. The measurements of

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ACC NR: AT7002117

the optical variables commenced immediately after the loading and were carried out in certain intervals right up to the onset of the steady creep. The stress concentration coefficient is derived from the rheological expression for material creep. For discs with small apertures the stress concentration factor was determined from the experimental data. The dependence of the stress concentration factor from the load was also determined experimentally and plotted for T-head mounts of the turbine blades, both for a perfect fit and the presence of a gap. The investigations showed that the greatest tensile stress occurs in the tail end of the blade and in the rim of the disc. Orig. art. has: 8 figures.

SUB CODE: 10/ ~~13,14~~ SUBM DATE: 14Jun66/ ORIG REF: 005/ OTH REF: 001

Card 2/2

BUGAKOV, I.L.

Duration of effective therapeutic pneumothorax. Probl.tub. 34 no.4: 33-37 Jl-Ag '56. (MLRA 9:11)

1. Iz Respublikanskogo protivotuberkuleznogo dispansera Estonskoy SSR (glavnyy vrach I.I.Varrik, zav. dispansernym otdleniem I.L. Bugakov) Tallinn.

(PNEUMOTHORAX, ARTIFICIAL
duration of ther. admin., indic.)

BUGAKOV, I.I. (Leningrad); VAKULENKO, A.A. (Leningrad)

Theory of the creep of metals. Izv. AN SSSR. Mekh. i mashinostr. no.6:3-11 N-D '63. (MIRA 17:1)

BUGAKOV, I.I. (Leningrad)

"The photocreep method and its application"

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 January - 5 February 1964

BUGAKOV, I.I.

Piezo-optical effect in polymers under simple load. Issl. po uprug. i plast. no.3:172-191 '64. (MIRA 17:6)

ACCESSION NR: AT4034322 S/2753/64/000/003/0192/0207

AUTHOR: Bugakov, I.I.; Smirnova, V.P.; Shikhobalov, S.P.

TITLE: Simulation of creep in the T-tails of turbine blades

SOURCE: Leningrad. Universitet. Matematiko-mekhanicheskiy fakul'tet. Issledovaniya po uprugosti i plastichnosti, no. 3, 1964, 192-207

TOPIC TAGS: turbine blade, turbine blade tail, T-tail design, tail creep characteristic, celluloid tail model, polarization microscopy analysis, tail support method, tail parameter effect, stress concentration pattern, tail stress distribution, stress direction reversal, stress redistribution period, steel creep, austenitic steel

ABSTRACTS: Creep in the T-tails of turbine blades was analyzed on celluloid models (modulus of elasticity 19,000 kg/cm^2, temperature function b = 0.021 cm^2/kg at 18-19C) by means of polarization microscopy. Models (see Fig.1 in the Enclosure) had relative dimensions $\frac{r}{d}$ = 0.07, 0.11 or 0.18, $\frac{D}{d}$ = 1.78, $\frac{h}{d}$ = 0.645, were stressed by applying a constant load (average tensile stress in the neck of a tail was 70 kg/cm^2) and were tested at 18-19C in two variants of tail support placement (see Fig. 2 in the Enclosure) to determine the

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ACCESSION NR: AT4034322

effects of various parameters (i.e. $\frac{r}{d}$ and $\frac{f}{d}$, f characterizing the location of tail reactive forces, α as the angular coordinate of an arc of radius r, S^0 and t^0 as nondimensional magnitudes relating to stress and time) on concentration of stress K. Rate of creep was usually measured 25 hours after application of a load, i.e. $t^0 = 0.195$. Results are plotted on several graphs and indicate that the support placement and parameter $\frac{f}{d}$ do not affect stress distribution in the cross section ab (see Fig. 1). Peak tensile stress acts on contour r. Deflection of initial stress directions in the cross section ab does not exceed 20° when creep occurs and it proceeds smoothly. Stress distribution along an arc of radius r at $S^0 = 0$ is uneven, the maximal stress acting on the center of the arc, and this distribution becomes uniform at $S^0 = 1.47$ and $t^0 = 0.195$ (i.e. creep, 25 hours). Dependence of K at the center of the arc on $\frac{r}{d}$ decreases with an increase in S^0 and t^0. The redistribution of stresses terminates at about 35 hours. Translation of results obtained for models to practical applications is exemplified for an austenitic steel with elasticity modulus of $1.7 \cdot 10^6$ kg/cm^2 and $b = 0.00248$ cm^2/kg at 600C. "The authors gratefully acknowledge the participation of V.I. Rozenblyum in the evaluation of the results." Orig. art. has: 12 figures and 13 formulas.

Card 2/5

ACCESSION NR: AT4034322

ASSOCIATION: Matematiko-mekhanicheskiy fakul'tet Leningradskogo universiteta (Department of Mathematics and Mechanics, Leningrad University)

SUBMITTED: 00 DATE ACQ: 30Apr64 ENCL: 02

SUB CODE: PR, MM NO REF SOV: 005 OTHER: 005

Card 3/5

BUGAKOV, M. A., (Eng.)

"Line Production Methods in Leningrad Instrument Manufacturing"

(Assembly-line Methods in Serial Manufacturing of Machinery and Tools) Moscow, Mashgiz, 1958. 325p. **(ed. Neymark, A. I.)**

BUGAKOV, M. Sh.

USSR/Engineering

Card 1/1 : Pub. 128 - 29/38

Authors : Konson, A. S.; Bugakov, M. Sh.; and Sokolitsyn, S. A.

Title : On accurate methods of calculating material requirements

Periodical : Vest. mash. 9, 83-91, Sep 1954

Abstract : A critical review is presented of V. D. Lavrov's article published in "Vest. mash. 12, 1952" on, "Progressive Methods for Calculating Material Requirements in Part Production". Tables; graph.

Institution : .....

Submitted : .....

BUGAKOV, M.Sh.; RUMYANTSEVA, G.S.

Improving training and knowledge in economics of instrument engineers. Izm.tekh. no.5:62-63 My '62. (MIRA 15:6)
(Mechanical engineers) (Economics--Study and teaching)

BUGAKOV, P.I.; UDALOV, V.S.; SHLYKOV, Yu.P.

[Investigating the heat conductivity of a packing of shot in various gaseous media] Issledovanie teploprovodnosti zasypki iz drobi v razlichnykh gazovykh sredakh. [n.p.] Gos. kom-t po ispol'zovaniiu atomnoi energii, 1960. 14 p.
(MIRA 17:1)
(Shot--Thermal properties) (Heat--Conduction)

BUGAKOV, P.I.; GRUZINOVA, T.A.; IONAYTIS, R.R.; KAMEN'SHCHIKOV, F.T.; POPOV, D.N.

[Study of a hydraulic system with a body moving within it] Issledovanie gidravlicheskoi sistemy s dvizhushchimsia v nei telom. [n.p.] Gos.kom-t po ispol'zovaniiu atomnoi energii, 1960. 42 p. (MIRA 17:1)

(Hydraulics)

BUGAKOV, P. S.

"Soils of South Transvolga Region (within the Limits of the Southeastern Rayons of Stalingrad Oblast)." Moscow Order of Lenin Agricultural Academy imeni K. A. Timiryazev, Moscow, 1955. (Dissertation for the Degree of Candidate in Agricultural Sciences)

SO: Knizhnaya Letopis', No. 22, 1955, pp 93-105

14-57-7-14966

Translation from: Referativnyy zhurnal, Geografiya, 1957, Nr 7, p 125 (USSR)

AUTHORS: Popazov, D. I., Bugakov, P. S.

TITLE: Peculiarities of Soil Formation in the Northwestern Caspian Plain (Nekotoryye osobennosti pochvoobrazovaniya v usloviyakh severo-zapadnoy chasti Prikaspiyskoy nizmennosti)

PERIODICAL: Dokl. Mosk. s.-kh. akad. im. K. A. Timiryazeva, 1956, Vol 1, Nr 26, pp 60-66

ABSTRACT: The southern lake-and-estuary depressed part of the Caspian Plain and the ancient Volga terrace which adjoins it exhibit a specific combination of soil forming processes in which steppes develop over receding turf. The steppe development process is active in the lower parts of the relief where grasses grow during the moist periods of springs and autumns.

Card 1/2

BUGAKOV, P.S.; KAZANTSEV, N.V.

Chemical characteristics of some soils of the Kan Korest-steppe.
Izv. Sib. otd. AN SSSR no. 11:121-129 '60. (MIRA 14:1)
(Kan Valley--Forest soils) (Soil chemistry)

BUGAKOV, S.A.

Modernization of guillotine shears. Mashinostroitel' no.7:17 Jl '60. (MIRA 13:7)
(Shears (Machine tools)—Technological innovations)

S/276/63/000/004/006/007
A052/A126

AUTHORS: Kugel', R.V., Smirnov, G.N., Bugakov, V.P.

TITLE: Increasing the service life ofelements cast of wearable steel

PERIODICAL: Referativnyy zhurnal, Tekhnologiya mashinostroyeniya, no. 4, 1963, 6, abstract 4G34. (Tr. Gos. soyuzn. n.-i. trakt. in-t, no. 135, 1961, 18 - 29)

TEXT: It is established that B additions increase sharply the hardenability of 45 Л (45L) steel. Combined with the increase of the minimum C content to 0.42% they secure the necessary hardened-layer depth in track runners of the ДТ-54 (DT-54) tractor (minimum HRC 40 in 8 mm depth). Under the heat treatment method now in use, the hardness on the surface of the runner rim fluctuates within broad limits. Additions of 0.002 - 0.004% B do not reduce the toughness of hardened 45L steel at positive and negative temperatures, but reduce the toughness of normalized steel. Prior to the introduction of B additions a satisfactory hardened-layer depth can be produced by the following modification of the chemical composition of 45L steel: a) C content must be within 0.42 - 0.52%; smelts should be carried

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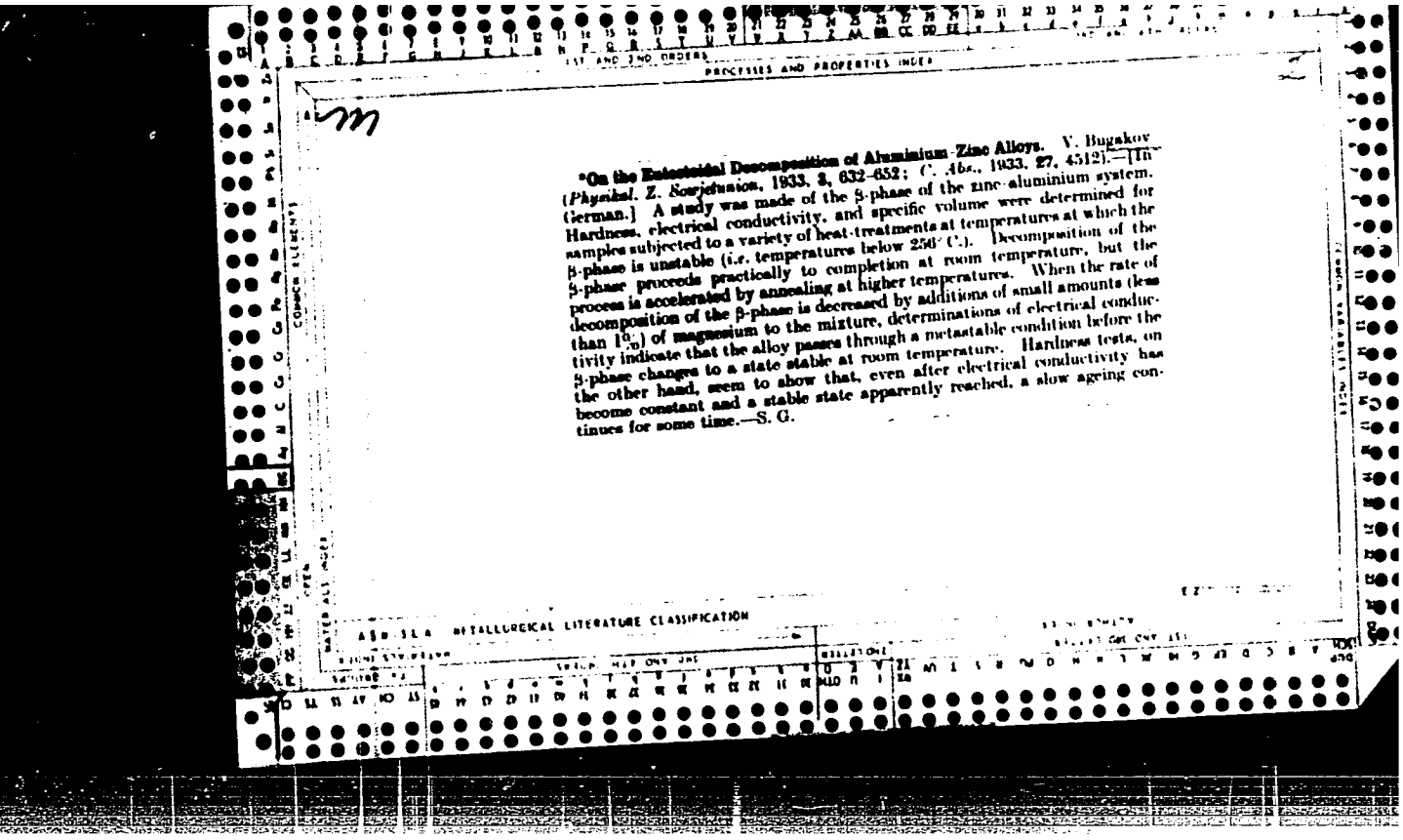
out in such a way that the frequency maximum in distribution curves of the chemical composition of smelts is in the 0.46 - 0.48% zone; b) the necessary Mn content is 0.7 - 1%; c) Cr content must be within 0.25 - 0.4%. When hardening the runners made of steel with B additions, the intensity of heat transfer from the internal surface of the rim must be reduced to prevent a through hardening of the rim over the whole cross-section to a too high hardness. When hardening runners made of steel without B additions in sprayers the latter must be adjusted in a way to secure a uniform water supply under constant pressure to the whole surface of the rim and a correspondingly uniform thickness and hardness of the hardened layer. For better heat transfer and to increase the depth of hardening the water must also wash the internal surface of the rim. Thereby the boss and the arms must be covered. The highest quality of the runners is achieved by induction hardening under heating conditions which do not cause the casting defects fuse. This method makes it possible to improve sharply the conditions of work and to create wide possibilities for the automation of heat treatment of runners in mass production.

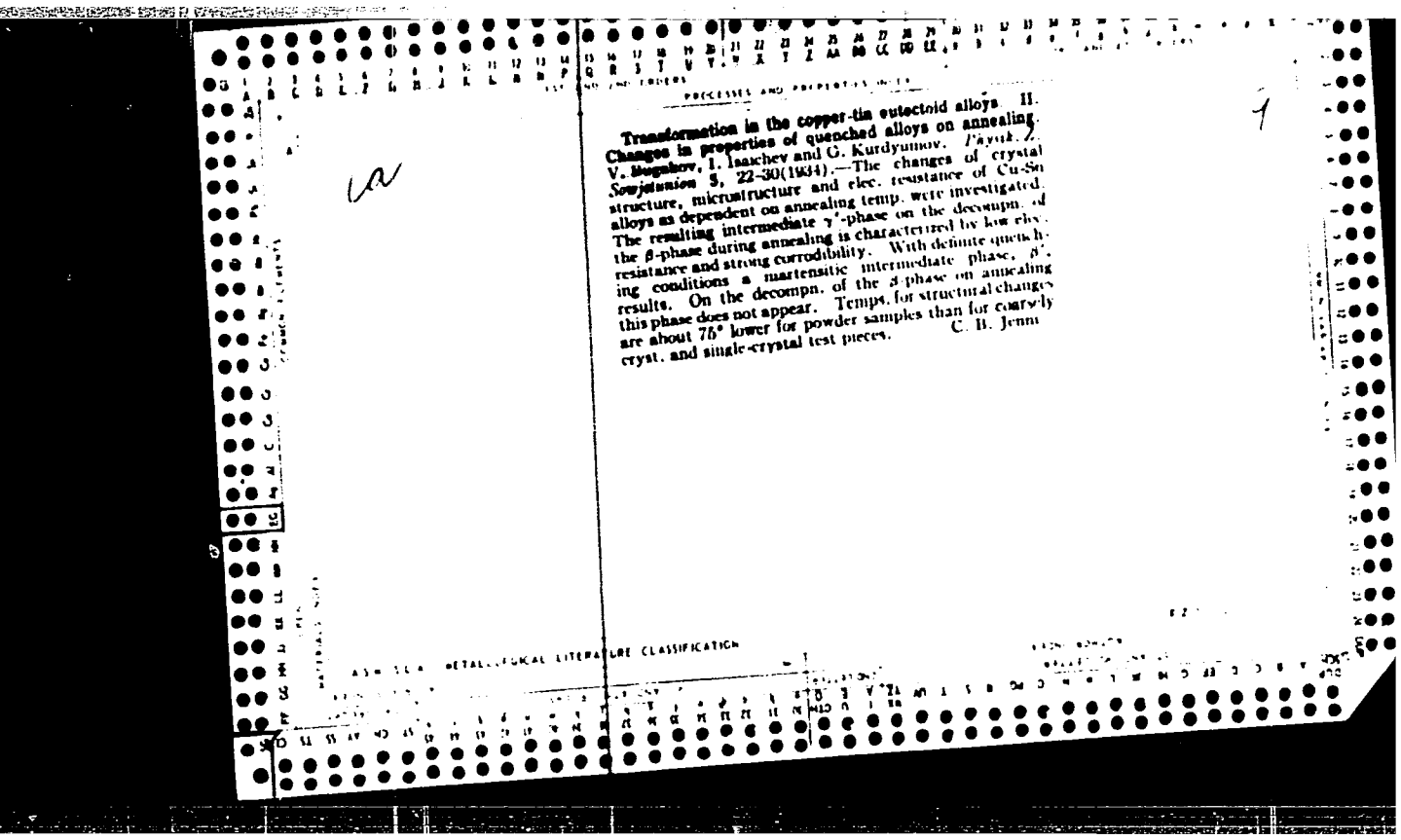
[Abstracter's note: Complete translation.]



PROCESSES AND PROPERTIES INDEX

***On the Heterotaxial Decomposition of Aluminium-Zinc Alloys.** V. Bugakov (*Physikal. Z. Sowjetunion*, 1933, **3**, 632–652; *C. Abs.*, 1933, **27**, 4512).—[In German.] A study was made of the β-phase of the zinc-aluminium system. Hardness, electrical conductivity, and specific volume were determined for samples subjected to a variety of heat-treatments at temperatures at which the β-phase is unstable (*i.e.* temperatures below 250° C.). Decomposition of the β-phase proceeds practically to completion at room temperature, but the process is accelerated by annealing at higher temperatures. When the rate of decomposition of the β-phase is decreased by additions of small amounts (less than 1%) of magnesium to the mixture, determinations of electrical conductivity indicate that the alloy passes through a metastable condition before the β-phase changes to a state stable at room temperature. Hardness tests, on the other hand, seem to show that, even after electrical conductivity has become constant and a stable state apparently reached, a slow ageing continues for some time.—S. G.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Transformation in the copper-tin eutectoid alloys II. Changes in properties of quenched alloys on annealing. V. Bogushov, I. Isachev and G. Kurdyumov. *Zhur. Tekh. Fiziki Soviet Physics* 5, 22-30(1934).—The changes of crystal structure, microstructure and elec. resistance of Cu-Sn alloys as dependent on annealing temp. were investigated. The resulting intermediate γ'-phase on the decompn. of the β-phase during annealing is characterized by low elec. resistance and strong corrodibility. With definite quenching conditions a martensitic intermediate phase, β', results. On the decompn. of the β-phase on annealing this phase does not appear. Temps. for structural changes are about 75° lower for powder samples than for coarsely cryst. and single-crystal test pieces. C. B. Jenn

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

A method for the investigation of the diffusion co-
efficients of metals by means of evaporation. V. Buzukov
and V. Neskuchaev. *Tech. Phys. U. S. S. R.* 1, 320-34
(1934)(in German); *J. Tech. Phys.* (U. S. S. R.) 4, 1342-0
(1934)(in Russian).—On the assumption that the surface
layer contains no adsorbed gas, the equation $dQ/dt =$
$2\pi DNe^{-(3.78)^2/R^2 - t}$ was derived by A. Grinberg (*J.*
Exptl. Theoret. Phys. (U. S. S. R.) 2, 245-55(1933)) for
the evapn. of a gas from a heated wire, where R = radius
of the wire, N = concn. of the gas in metal, D = the
diffusion coeff. of the gas in metal and t = time. Brass
cylinders of 1 to 1.5 mm. diam. were placed in a vessel
evacuated to 10^{-4} mm. and heated to 600° to 950°, and the
loss in wt. was detd. at definite intervals. The data
obey the given equation with a heat of diffusion of 30,000
cal. The diffusion D in cm. per day is 0.0056 at 700°
and 0.124 at 950°. F. H. Rathmann

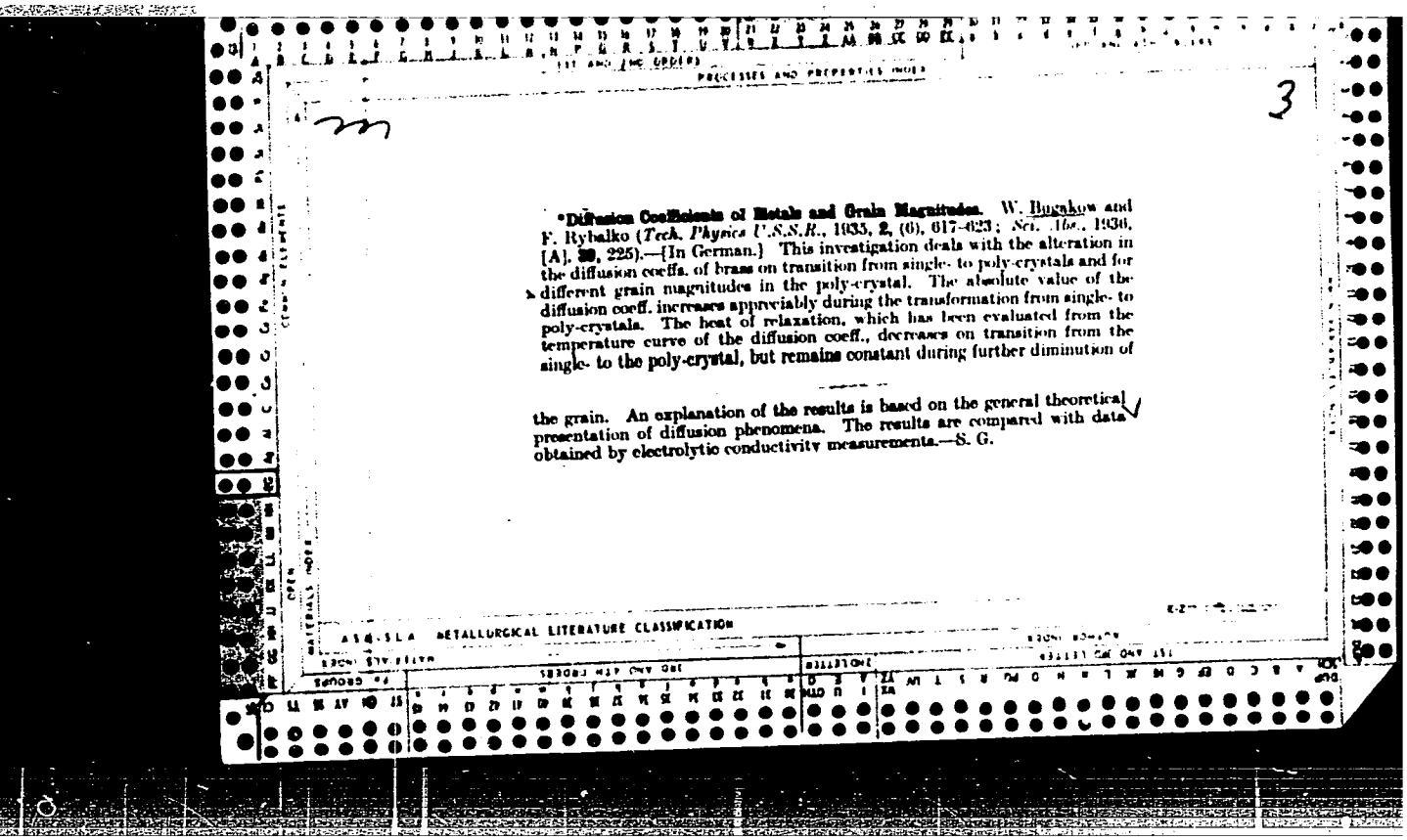
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CO

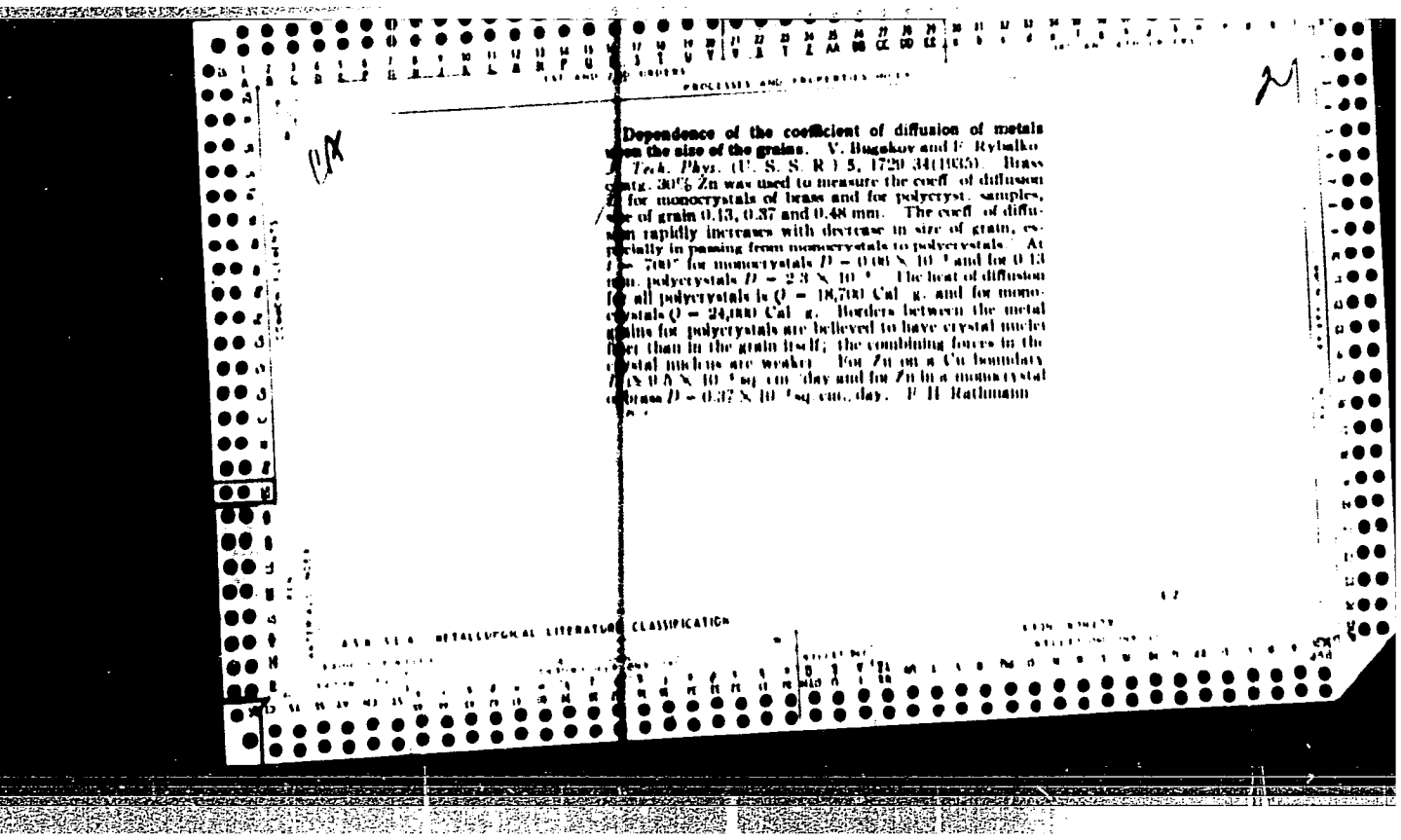
9

Relationship of diffusion velocity to crystallographic orientation in metals (anisotropic diffusion). V. Bugakov and N. Brezhneva. *Tech. Phys. U. S. S. R.* 2, 3[illegible] No. 5. (1935)(in German). The diffusion velocities of Hg in Cd and Zn and of Cu in Zn in directions parallel and perpendicular to the base plane of single crystals were detd. between 20° and 200°. Hg diffusion figures were obtained on the desired crystal face by placing a drop of Hg on the metal, wiping off the excess after an amalgam had formed, heating to the required temp. and grinding the surface. The base plane figures were circles, all other figures were ellipses with major axes parallel to the base plane. The diffusion velocity was the same in all directions in the base plane only. It was greatest in directions parallel and least in directions perpendicular to the base plane. Cu was electroplated upon the Zn crystals and heated at the required temp. in a vacuum for 5 days. Microsections perpendicular to the plated surface were cut and the diffusion layer was measured microscopically. The diffusion velocity in the direction parallel to the base plane was again greater than in the perpendicular direction. X-ray analysis showed the diffusion layer to be of the γ-phase. The differences between the diffusion velocities in the various directions decreased, for both Cu and Hg, with increase in temp. Iver Igelsrud

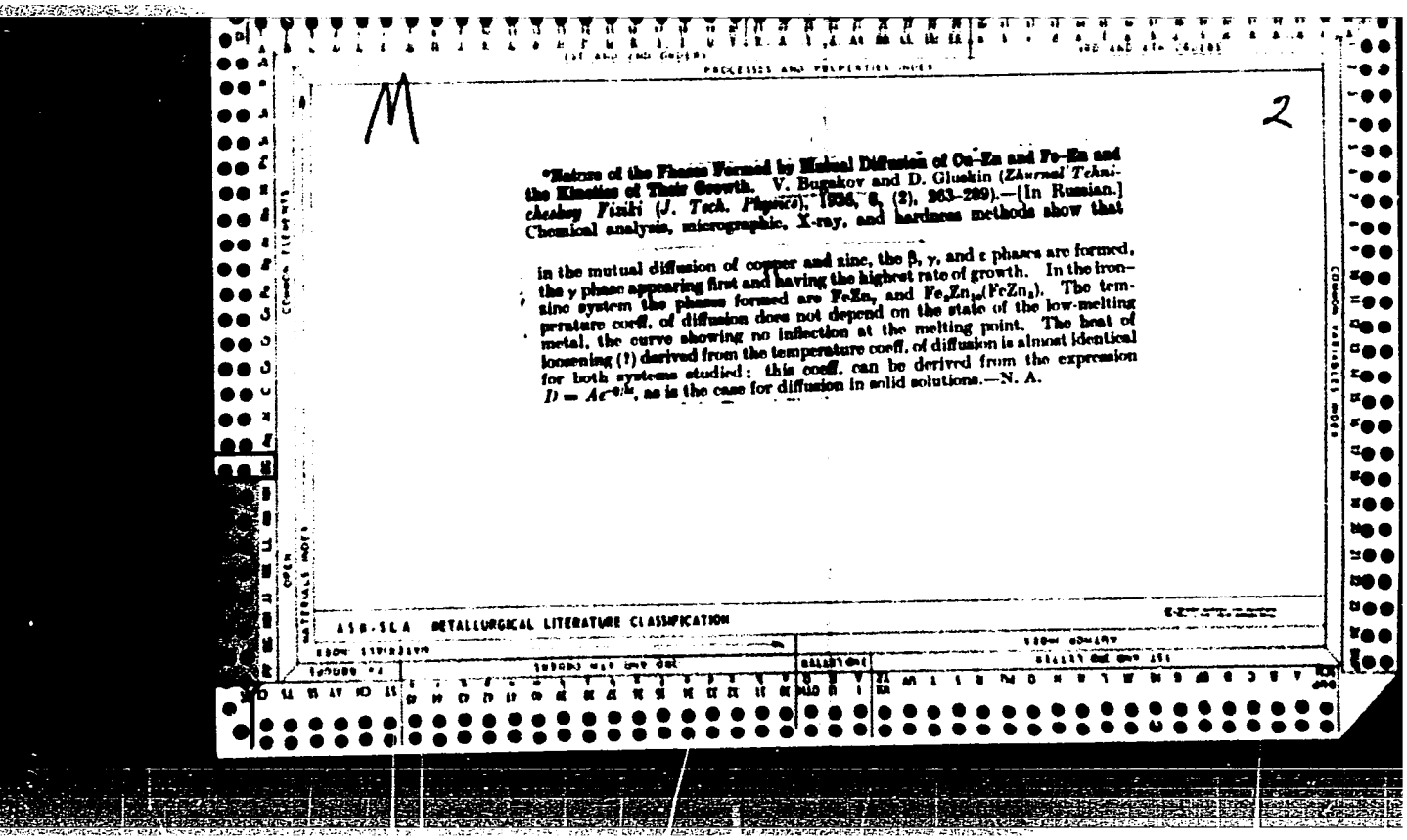
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



•**Diffusion Coefficients of Metals and Grain Magnitudes.** W. Bugakow and F. Rybalko (*Tech. Physics U.S.S.R.*, 1935, **2**, (6), 617–623; *Sci. Abs.*, 1936, [A], **39**, 225).—[In German.] This investigation deals with the alteration in the diffusion coeffs. of brass on transition from single- to poly-crystals and for different grain magnitudes in the poly-crystal. The absolute value of the diffusion coeff. increases appreciably during the transformation from single- to poly-crystals. The heat of relaxation, which has been evaluated from the temperature curve of the diffusion coeff., decreases on transition from the single- to the poly-crystal, but remains constant during further diminution of the grain. An explanation of the results is based on the general theoretical presentation of diffusion phenomena. The results are compared with data obtained by electrolytic conductivity measurements.—S. G.



Dependence of the coefficient of diffusion of metals on the size of the grains. V. Bugakov and I. Rytalko. *Zavod. Lab.* (U. S. S. R.) 5, 1720-34(1935). Brass containing 30% Zn was used to measure the coeff. of diffusion in a few monocrystals of brass and for polycryst. samples, the size of grain 0.13, 0.37 and 0.48 mm. The coeff. of diffusion rapidly increases with decrease in size of grain, especially in passing from monocrystals to polycrystals. At 750° for monocrystals $D = 0.08 \times 10^{-9}$ and for 0.13 mm. polycrystals $D = 2.3 \times 10^{-9}$. The heat of diffusion for all polycrystals is $Q = 18,700$ Cal. g. and for monocrystals $Q = 24,000$ Cal. g. Borders between the metal grains for polycrystals are believed to have crystal nuclei different than in the grain itself; the combining forces in the crystal nucleus are weaker. For Zn on a Cu boundary $D = 0.5 \times 10^{-9}$ sq. cm./day and for Zn in a monocrystal of brass $D = 0.37 \times 10^{-9}$ sq. cm./day. P. H. Rathmann



M

2

Nature of the Phases Formed by Mutual Diffusion of Cu–Zn and Fe–Zn and the Kinetics of Their Growth. V. Bugakov and D. Gluskin (*Zhurnal Tekhnicheskoy Fiziki* [*J. Tech. Physics*], 1936, **6**, (2), 263–289).—[In Russian.] Chemical analysis, micrographic, X-ray, and hardness methods show that in the mutual diffusion of copper and zinc, the β, γ, and ε phases are formed, the γ phase appearing first and having the highest rate of growth. In the iron–zinc system the phases formed are $FeZn_7$ and $Fe_2Zn_{11}(FeZn_5)$. The temperature coeff. of diffusion does not depend on the state of the low-melting metal, the curve showing no inflection at the melting point. The heat of loosening (?) derived from the temperature coeff. of diffusion is almost identical for both systems studied: this coeff. can be derived from the expression $D = Ae^{-Q/R}$, as is the case for diffusion in solid solutions.—N. A.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

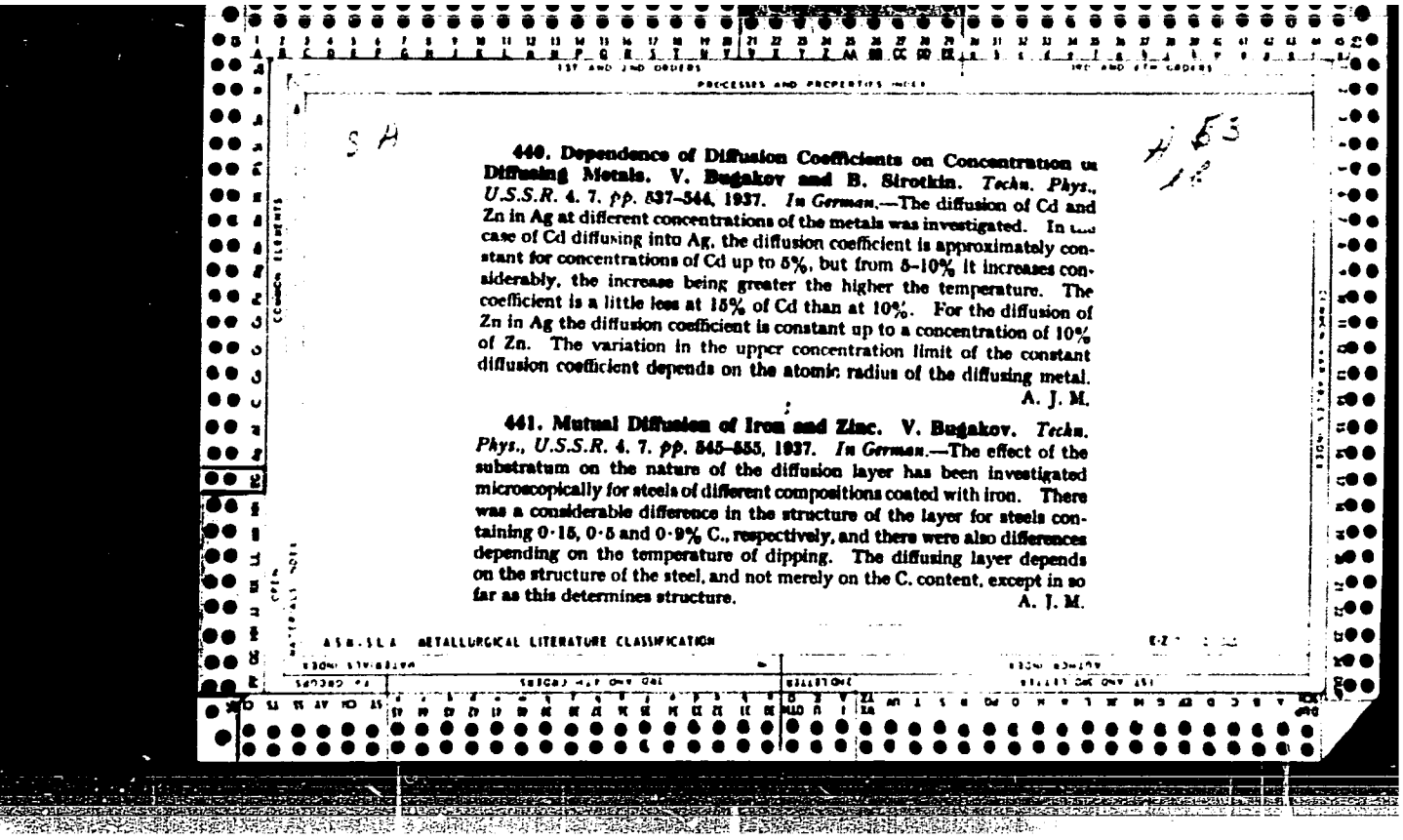
BUGAKOV, V. S.

Work and Perspectives of the Ural FTI Diffusion Laboratory. AN SSR (Department of Mathematics and Natural Sciences, Physics Series) No 6, Oct, 193[illegible]

BUGAKOV, V. S. ; NESKUCHAYEV, V. D.

Diffusion of Metals

ONTI, NKTP, DNTVU, Kharkov, 1937

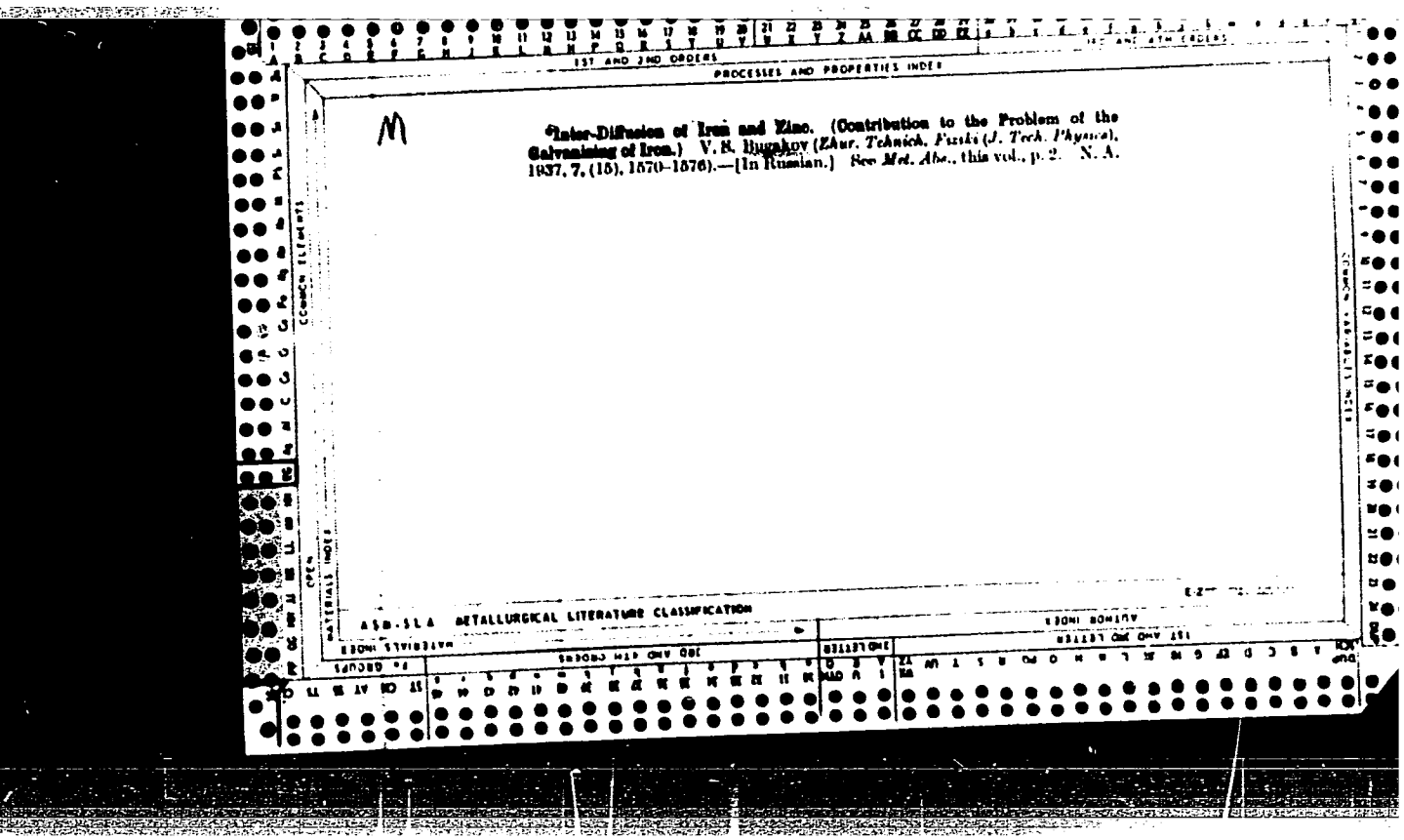


440. Dependence of Diffusion Coefficients on Concentration in Diffusing Metals. V. Bugakov and B. Sirotkin. *Techn. Phys., U.S.S.R.* 4. 7. *pp.* 537–544. 1937. *In German.*—The diffusion of Cd and Zn in Ag at different concentrations of the metals was investigated. In the case of Cd diffusing into Ag, the diffusion coefficient is approximately constant for concentrations of Cd up to 5%, but from 5–10% it increases considerably, the increase being greater the higher the temperature. The coefficient is a little less at 15% of Cd than at 10%. For the diffusion of Zn in Ag the diffusion coefficient is constant up to a concentration of 10% of Zn. The variation in the upper concentration limit of the constant diffusion coefficient depends on the atomic radius of the diffusing metal.

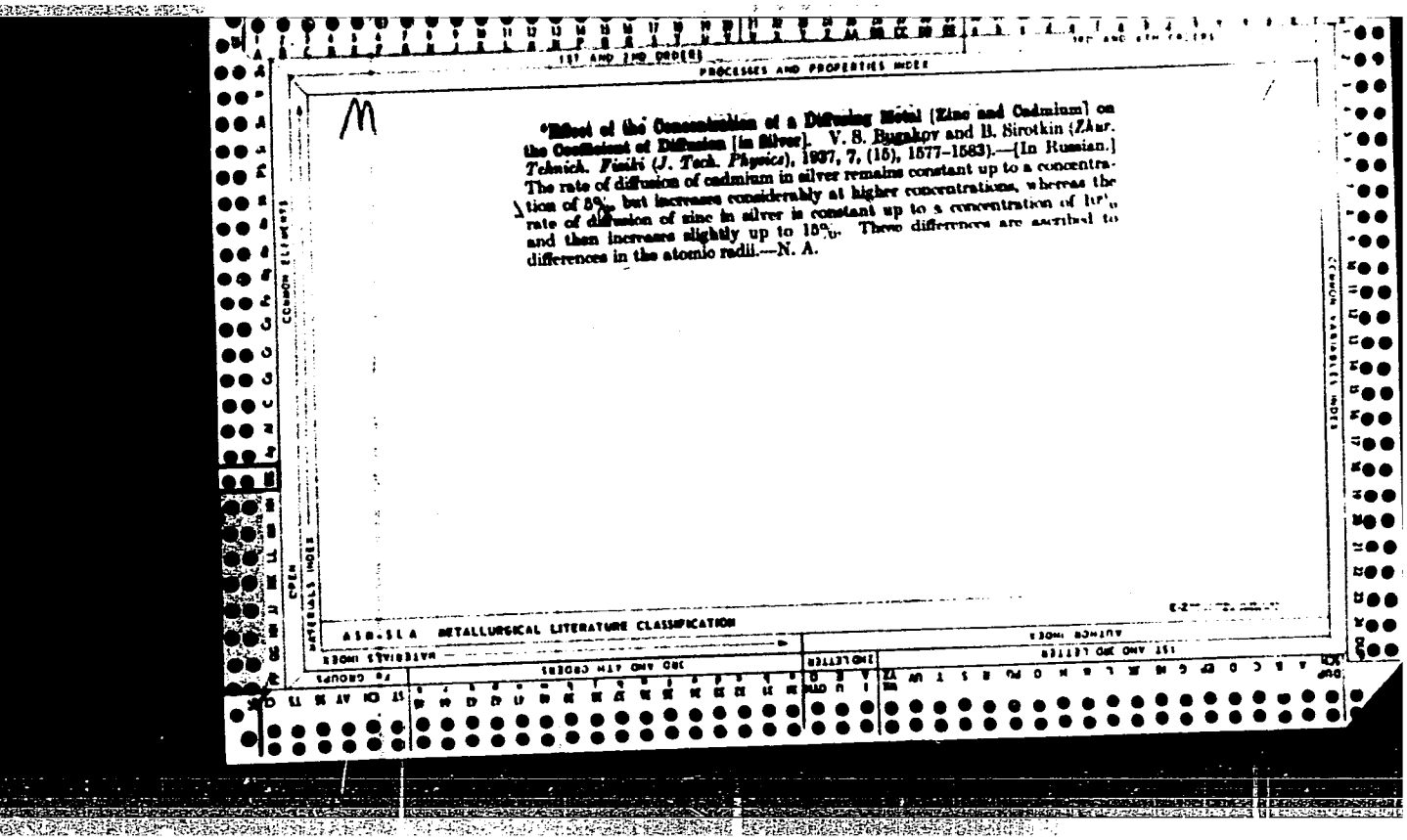
A. J. M.

441. Mutual Diffusion of Iron and Zinc. V. Bugakov. *Techn. Phys., U.S.S.R.* 4. 7. *pp.* 545–555. 1937. *In German.*—The effect of the substratum on the nature of the diffusion layer has been investigated microscopically for steels of different compositions coated with iron. There was a considerable difference in the structure of the layer for steels containing 0·15, 0·5 and 0·9% C., respectively, and there were also differences depending on the temperature of dipping. The diffusing layer depends on the structure of the steel, and not merely on the C. content, except in so far as this determines structure.

A. J. M.



Inter-Diffusion of Iron and Zinc. (Contribution to the Problem of the Galvanising of Iron.) V. S. Burakov (*Zhur. Tekhnich. Fiziki* (*J. Tech. Physics*), 1937, 7, (15), 1670–1676).—[In Russian.] See *Met. Abs.*, this vol., p. 2. N. A.

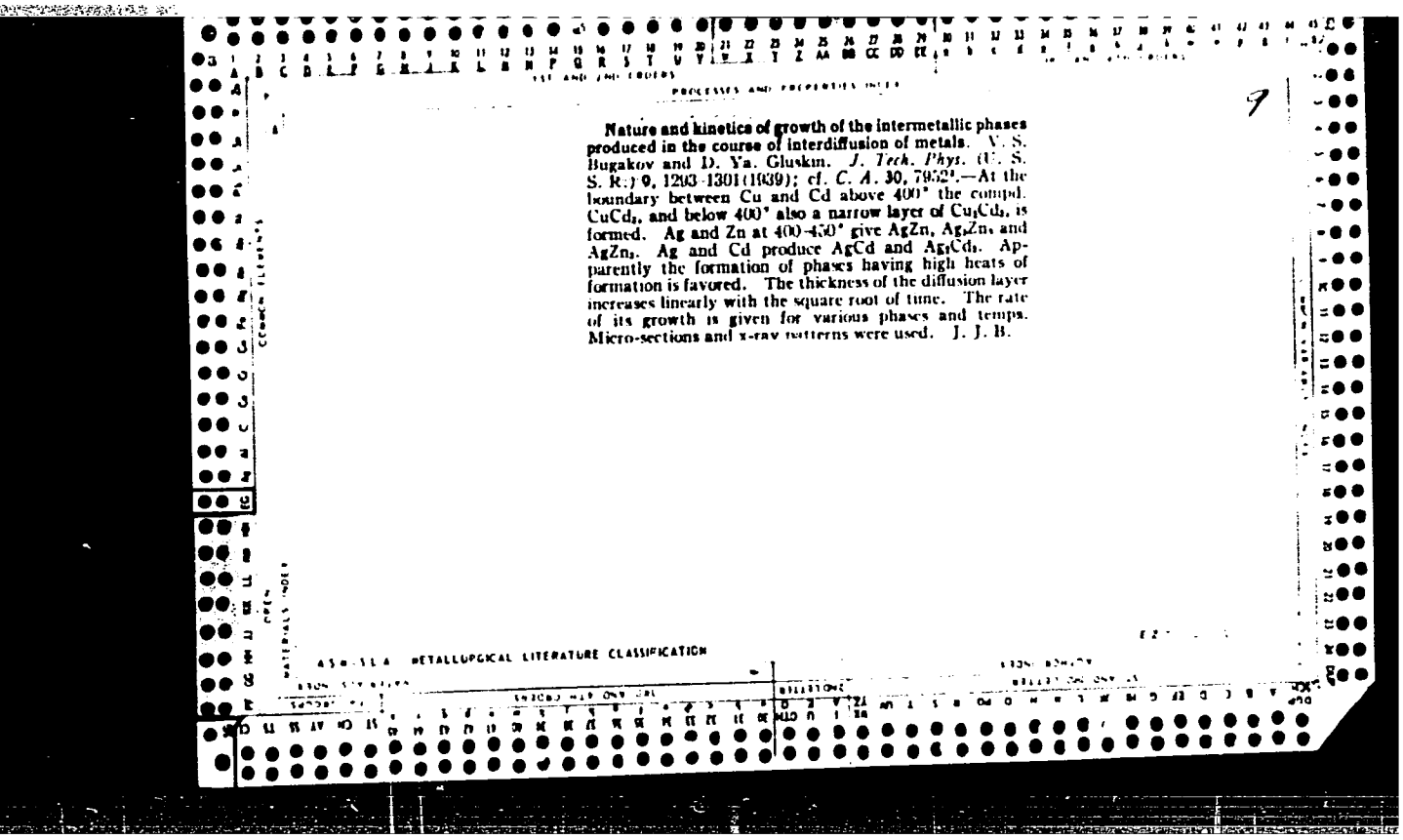


PROCESSES AND PROPERTIES INDEX

M

*Effect of the Concentration of a Diffusing Metal [Zinc and Cadmium] on the Coefficient of Diffusion [in Silver]. V. S. Bugakov and B. Sirotkin (*Zhur. Teknich. Fiziki* (*J. Tech. Physics*), 1937, 7, (15), 1577–1583).—[In Russian.] The rate of diffusion of cadmium in silver remains constant up to a concentration of 5% but increases considerably at higher concentrations, whereas the rate of diffusion of zinc in silver is constant up to a concentration of 15% and then increases slightly up to 18%. These differences are ascribed to differences in the atomic radii.—N. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Nature and kinetics of growth of the intermetallic phases produced in the course of interdiffusion of metals. V. S. Bugakov and D. Ya. Gluskin. *J. Tech. Phys.* (U. S. S. R.) **9**, 1293–1301 (1939); cf. *C. A.* **30**, 7952⁸.—At the boundary between Cu and Cd above 400° the compd. $CuCd_2$, and below 400° also a narrow layer of Cu_5Cd_8, is formed. Ag and Zn at 400–450° give AgZn, Ag_5Zn_8 and $AgZn_3$. Ag and Cd produce AgCd and Ag_5Cd_8. Apparently the formation of phases having high heats of formation is favored. The thickness of the diffusion layer increases linearly with the square root of time. The rate of its growth is given for various phases and temps. Micro-sections and x-ray patterns were used. J. J. B.

Discussion on A. M. Zagrubski's Paper: "On the Applicability of the Evaporation Method to the Measurement of the Diffusion Coefficient of Metals."

V. Bugakov (*Zhur. Tekhnich. Fiziki* (*J. Tech. Physics*), 1939, **9**, 1771–1773; *Chem. Zentr.*, 1940, **111**, (1), 3895).—[In Russian.] In certain doubtful cases it is advisable to check the relation between the diffusion coeff. and the evaporation rate, but this is not necessary in cases where the results of the measurements are confirmed by other means. No effect of the size of the specimens on the diffusion const. has hitherto been found. In addition, the greatest possible error based on Zagrubski's considerations has no practical significance, since greater variations in the values measured exist, and at most only their order of magnitude is significant.

BUGAKOV, V.; SIROTKIN, B.

The Reaction of Iron and Zinc.
I. Kinetics of the Reaction of Iron and Liquid Zinc (The Problem of Optimum Conditions for Iron Zincation).

ZhTF 10, 414, 1940

BUGAKOV, V. Z.

Diffusion in Metals and Alloys, State Publishing House of Technical-Theoretical Literature, Moscow-Leningrad, 1949

Book- CS-G-EG-1205

N

ASM

193-N. (Book) Diffuziia v Metallakh i Splavakh. (Diffusion in Metals and Alloys.) V. Z. Bugakov, 212 pages. 1949. Government Publishing House for Technical-Theoretical Literature, Moscow and Leningrad, U.S.S.R.

Results of investigations by the author and co-workers. Divided into two principal sections: Atomic diffusion and reactive diffusion. The latter includes a subsection on the reaction of iron with molten zinc (theory of zincification of iron). Graphs and tables. 101 ref. (N1, L16, Zn, Fe)

BUGAKOV, Yu.D.

Measures for preventing certain types of accidents when drilling deep wells in the Donets Basin. Trudy MGRI 31:60-64 '57.
(Donets Basin--Boring) (MIRA 11:6)

AUTHOR: Bugakov, Yu.D. 30V/132-58-11-9/17

TITLE: On the Strength of the Existing Telescopic Fitting of Geological Prospecting Drive Pipes (O prochnosti sushchestvuyushchego teleskopa geologorazvedochnykh obsadnykh trub)

PERIODICAL: Razvedka i okhrana nedr, 1958, Nr 11, pp 32 - 35 (USSR)

ABSTRACT: As prospecting bore-holes are being drilled still deeper and already are 1,400 - 1,600 m deep, the author is studying the question of the presently used telescopic fitting of the drive-pipes for deep bore-holes. The presently-used pipes with or without the nipple fitting, the resistance of which to pressure is fixed by GOST 6238-52, are not sufficiently resistant for use in deep bore-holes. The author proposes: 1) the replacement of the cylindrical thread coupling in the drive-pipes, by a conical fitting; 2) the manufacture of the pipes from steel of brand E; 3) the heat treatment of nipples and ends of the drive-pipe, made of brand E steel. The existing GOST 6238-52 must also be modified. There are 6 tables and 1 diagram.

ASSOCIATION: Trest Artemuglegeologiya (The Artemuglegeologiya Trust)

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BUGAKOV, Yu. D., Candidate Tech Sci (diss) -- "Investigation of deep drilling in the Donbass (In the geological-prospecting activities of the trust 'Artemuglegeologiya')". Moscow, 1959. 16 pp (Min Higher Educ USSR, Moscow Geological-Prospecting Inst im S. Ordzhonikidze) (KL, No 25, 1959, 133)

[redacted] PAKHOMOV, I.N.

Economic indices of diamond drilling in the [redacted] and the prospects for their improvement. Razved. i okh. nedr. 30 no.11:24-27 N '64.

1. Dnepropetrovskaya ekspeditsiya Ukrainskogo nauchno-issledovatel'skogo geologorazvedochnogo instituta.

[redacted], Ya.D.; [redacted], L.Ye.

Some data on the reliability of striping in the core drilling of deep holes for coal. Razved. i okh. nedr 31 no.7:45-47 F '65. (MIRA 18:3)

1. Dnepropetrovskaya geologicheskaya ekspeditsiya Ukrainskogo nauchno-issledovatel'skogo geologorazvedochnogo instituta.

BUGAKOVA, A. N.

Bugakova, A. N. — "Metabolism of Sulfur in the Soybean Depending on the Internal and External Conditions." Moscow Order of Lenin Agricultural Acad imeni K. A. Timiryazev, Moscow, 1955. (Dissertation for Degree of Candidate of Biological Sciences).

SO: Knizhnaya Letopis', No. 23, Moscow, June, 1955, pp. 87-104.

17(4),30(1)

AUTHOR: Bugakova, A. M. SOV/20-126-6-59/67

TITLE: Rate of Sulfur Absorption in the Plants of the Soy Bean (Skorost' postupleniya sery v rasteniya soi)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 6, pp 1362-1364 (USSR)

ABSTRACT: By means of the isotope method introduced only recently it was also found that the rate of the transportation of phosphorus in the plant is no constant value but depends on internal causes (kind of plant, age) and is changed by environmental influences. The author studied the question put forward in the title with the soy bean type Kharbinskaya 231 in spring 1954. She used the radioactive isotope S^{35} as a $Na_2S^{35}O_4$-solution. The time after which marked sulfur appears in leaves of different height was determined. The length of stem and petioles and the time needed by S^{35} to pass this distance being known, its rate of movement could easily be calculated. As is seen from table 1, S^{35} was first found in the top leaves which showed the most intensive growth. The further the intensively sulfur-utilizing organs were removed from the roots due to

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their growth, the more the movement of sulfur in these organs was accelerated. Thus the said rate is no constant value; it changes in the course of ontogesis and is different for the individual leaves. It is determined by the needs of the various organs. These needs depend on the rate of growth of the organ. I. I. Gunar directed the investigation . There are 1 table and 9 references, 6 of which are Soviet.

PRESENTED: February 25, 1959, by A. L. Kursanov, Academician

SUBMITTED: February 23, 1959

BUGAKOVA, A.N.

Dynamics of compounds containing sulfur in plants. Dokl. AN SSSR 141 no.5:1236-1238 D '61. (MIRA 14:12)

1. Krasnoyarskiy sel'skokhozyaystvennyy institut. Predstavleno akademikom A.L. Kursanovym.
(Plants—Metabolism) (Sulfur)

ANTSIFEROV, M.I.; BUGAKOVA, M.S., DAVYDOVA, M.S.

Transmissive outbreak of tularemia in Krasnoyarsk Territory and some problems in its epidemiology. Izv.Irk.gos.nauch.-issl.protivochum.inst. 15:215-220 '57. (MIRA 13:7)
(KRASNOYARSK TERRITORY--TULAREMIA)